

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling a blood pump implanted in a patient, comprising:
 - operating the pump at a predetermined speed;
 - monitoring the patient's pump flow rate;
 - extracting the patient's diastolic pump flow rate from the pump flow rate, wherein the diastolic pump flow rate is a separately isolated flow contribution below a mean pump flow rate; and
 - changing the predetermined speed in response to the diastolic pump flow rate.
2. (Currently Amended) The method of claim 1, further comprising:
 - monitoring the patient's heart rate; and
 - changing the predetermined speed in response to ~~at least one of the diastolic flow rate or the~~ heart rate.
3. (Currently Amended) The method of claim 1, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

4. (Previously Presented) The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the heart rate.

5. (Currently Amended) The method of claim 1, wherein changing the predetermined speed includes decreasing the pump speed in response to a decrease in the diastolic pump flow rate.

6. (Currently Amended) The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

7. (Currently Amended) A pump system, comprising:

a pump; and

a controller having an input for receiving a blood pump flow rate signal, the controller being programmed to extract a separate diastolic pump flow rate from the blood pump flow rate signal and provide a control signal to the pump to vary the speed of the pump in response to the separate diastolic pump flow rate, wherein the separate diastolic pump flow rate is a flow contribution below a mean flow rate.

8. (Previously Presented) The pump system of claim 7, further comprising an implantable flow measurement device having an output for providing the flow rate signal.

9. (Previously Presented) The pump system of claim 7, wherein the controller is further programmed to vary the speed of the pump in response to heart rate changes.

10. (Currently Amended) The pump system of claim 7, wherein the controller is programmed to increase the speed of the pump in response to an increase in the separate diastolic pump flow rate.

11. (Currently Amended) The pump system of claim 7, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the separate diastolic pump flow rate.

12. (Currently Amended) The pump system of claim 9, wherein the controller is programmed to increase the speed of the pump in response to an increase in at least one of the separate diastolic pump flow rate or the heart rate.

13. (Currently Amended) The pump system of claim 12, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the separate diastolic pump flow rate.

14. (Previously Presented) The method of claim 1, further comprising:

 setting the predetermined speed of the pump in accordance with activities performed by the patient.

Appl. No. 10/501,112
Amdt. Dated April 22, 2009
Reply to Office Action of March 19, 2009

15. (Previously Presented) The method of claim 14, wherein the activities are sleeping, normal activity or high energy exertion.

16-18. (Canceled)

19. (Currently Amended) The pump system of claim 7, further comprising an implantable pressure sensor for providing pressure sensor data to the controller.

20. (Currently Amended) The pump system of claim 19, wherein the pressure sensor data from the pressure sensor ~~may be use~~ is used to derive separate diastolic pump flow rate information.

21-23. (Canceled)

24. (Previously Presented) The method of claim 2, wherein changing the predetermined speed includes decreasing the pump speed in response to a decreasing in the heart rate.

25. (Currently Amended) The method of claim 2, wherein changing the predetermined speed includes decreasing the pump speed in response to a decrease in the diastolic pump flow rate.

26. (Currently Amended) A method of controlling a blood pump implanted in a patient, comprising:

monitoring the patient's blood pump flow rate;

extracting the patient's diastolic pump flow rate from the pump flow rate, wherein the diastolic pump flow rate is a separately isolated flow contribution below a mean flow rate; and

changing a speed of the pump in response to the extracted diastolic pump flow rate.

27. (Currently Amended) The method of claim 26, further including the step of increasing the speed of the pump in response to an increase in the extracted diastolic pump flow rate.

28. (Currently Amended) The method of claim 26, further including the step of decreasing the speed of the pump in response to a decrease in the extracted diastolic pump flow rate.